AUGMENTED REALITY APPLICATION AS COMPUTER ASSEMBLY LEARNING BASED ON ANDROID MOBILE

FINAL PROJECT REPORT

Submitted as one of Fulfillment of the Requirements

for Getting Bachelor Degree

in Department of Informatics Faculty of Communications and Informatics

University Muhammadiyah of Surakarta

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FACULTY OF COMMUNICATION AND INFORMATICS

MUHAMMADIYAH UNIVERSITY OF SURAKARTA

2014

APPROVAL

AUGMENTED REALITY APPLICATION AS COMPUTER ASSEMBLY LEARNING BASED ON ANDROID MOBILE

It has been inspected, approved and passed on:

Day : Monday

Date : 19 Julyth 2014

Advisor

Umi Fadlilah S.T, M.Eng

NIP : 197803222005012002

ACCPEPTANCE

AUGMENTED REALITY APPLICATION AS COMPUTER ASSEMBLY LEARNING BASED ON ANDROID MOBILE

Prepared and compiled by

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It has been maintained in front of the Board of Examiners

on 19 Julyth 2014

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CONTRIBUTION LIST

The author here with assert that there are no work had been submitted to obtain bachelor degree in any University in this final project report and as far as the author concern no work or opinion had been written or published by another person concept the written references which are referred in this report and mentioned in bibliography.

Here author would like to convey the contributions list in the preparation of the final project:

1. Application design and modeling objects created with the help of books and the internet, share with friends.
2. Laptop specifications used in building applications are: Windows 8 operating system, Intel Core i3-2310M, 2:10 GHz, 2GB RAM, 500 GB hard drive.
3. Design of augmented reality applications using Unity software 2.6.7 and vuforia 4.13 library.
4. Design of the 3D object model using blender software 2.6.4
5. Application program that used for editing images using Corel Draw x4 and photoshop 7.
6. Application program that used for editing video using Handbrake 0.9.9 (64bit) and Sony Vegas Pro 3.0 (64 bit).

This statement and this contribution list the author make to be honest. The author responsible for the contents and truth of the above list.

Surakarta, 14th on July 2014

Veni Alfianita

Advisor

Umi Fadlilah S.T, M.Eng
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MOTTO

MOTTO:

"For the sake of time. Behold, the man really is in loss, except those who believe and do righteous deeds and counsel-advised in order to obey the truth and counsel-advised in order to fulfill patience."

(QS. Al-Ashr, Ayat1-3)

DEDICATION

As gratitude and thanks the author dedicates my work to:

1. Allah SWT and Muhammad SAW
2. My loving parent that always give me love care, educate and pray for my happiness and successes with full sincerity
3. My loving sister, Octafiana and noviantika that give me best support.
4. For my beloved Muhamad kumarudin who give me love, passion, happiness and motivate to have a better life.
5. My beloved extended family, thanks for your pray and blessing
6. For my advisor Mrs. Umi Fadlillah S.T, M.Eng.
7. For my friends, Kaidah Budi Utami, Krisna Sukmaning Palupi, Yanti Ghaffaar, Niken Tantining Tyas, and Ninik Puspita Sari thanks for your love, happiness, motivate and advice for my better live.
8. All my friend in informatics department, especially my class mate X and roommate A-3-12 thank you so much for your motivate and advice.
9. For all my friend from RAPMA FM 2010 (Radio Penelitian Mahasiswa), HIMATIF 2010 (Himpunan Mahasiswa Teknik Informatika), FOSTI 2010 (Forum OpenSource Teknik Informatika), CANTING.

INTRODUCTION

Praise to Allah for all blessing and guidance, so the author can finish this final project with title “Augmented Reality Application As Computer Assembly Learning Based On Android Mobile”.

This final project is structured to fill the curriculum in Department of Informatics Engineering Universitas Muhammadiyah Surakarta, as a student in order to complete the obligations of the degree program.

The author realized this report still far away from perfection, so the writer hopes there's a critical and opinion that could be help from some parties for future fixation. Many parties had been rendered a service so the arrangement of this last assignment could be done. for those reasons, the writer very grateful with all of lowliness towards:

1. Allah SWT with all of praises, The One Allah, Allah the owner of universe.
2. Shalawat and regards always be assigned towards our prophet Muhammad SAW and his family, also for his close friends.
3. My parents whose always gave me affections and wishes for my happiness, also all of my youngsters whose I loved.
4. Mrs. Umi Fadillah S.T, M.Eng as my mentor who always gave me direction and opinion in this last assignment's arrangement.

5. Mr. Husni Thamrin, S.T, M.T., Ph.D. "Dekan" of Communication and Informatics Departement.
6. Mr. Dr. Heru Supriyono, M.Sc. as a leader from Study Programme "Informatics Engineering".
7. Mr. and Mrs. Teachers whose had been taught and shared their knowledges to the writer all this time. 8. Friends and the other parties whose helped me out in this arrangement of last assignment

The writer hopes its might be useful for people, especially for the writer and the readers generally. Hopes could give some benefits in order to knowledge enrichment for the readers.

Surakarta, 14th on July 2014

Authors.

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ABSTRACT

Augmented Reality is a technology merger between the real world with the virtual world, so as if the virtual object feels like real objects displayed in realtime. This application is intended to merge the 3D object that it is a replica of some components of the computer and use marker predetermined developer. The computer assembly guide application implemented on mobile phones with android operating system.

Creating an application is started with the collection of data, then the system needs analysis, then the design phase of each component of a 3D object using a computer with software blender 2.6.4. Then development of the system and the insertion of 3D object to unity 4.1.3f. In implementation required the marker, here using six images to be used as a means of introduction of the system will display the 3D object. In image pattern recognition in QCAR used Natural Features Tracking with FAST Corner detection method is detection by finding the points (interest points) or corners (corner) on an image. Term of corners and interest points are often used interchangeably. First performed edge detection, then process edge analysis to get rapid detection angle.

The results are an introduction of computer components and computer assembling application with Augmented Reality technology in form of video. This application has a size of 51.7 MB. Implementing this application on android mobile operating system with a minimum of android version 2.3 (gingerbread) and has a minimum of 170 MB of memory space.

Keyword: *Android, Augmented Reality, Computer Assembly.*